Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application. Claims 33, 47, and 57 have been amended. Claims 60-62 have been canceled.

Listing of Claims:

1-32. (Canceled)

33. (Currently Amended) A method for satisfying a Quality of Service (QoS) contract with an initiator in an Integrated Circuit, comprising:

receiving a request from ~~an~~ the initiator in the Integrated Circuit in a first time less than or equal to an ordinal number times an arrival interval to satisfy an arrival model, wherein the ordinal number signifies a position of the request among a group of requests;

returning the request from the initiator that has been serviced by a target to the initiator in a second time less than or equal to a constant term plus the ordinal number times a service interval to satisfy a service model; and

measuring the first and second time at a boundary between the initiator and an interconnect in the Integrated Circuit.

34. (Previously Presented) The method of claim 33, further comprising:

determining whether the arrival model and the service model have been satisfied in order to satisfy the QoS contract.

35. (Previously Presented) The method of claim 33, further comprising:

satisfying the QoS contract using the initiator, a target, the interconnect, and a QoS unit that are all located on a chip.

36. (Previously Presented) The method of claim 35, wherein the service interval is greater than the arrival interval.

37. (Previously Presented) The method of claim 33, wherein the service interval is equal to the arrival interval.

38. (Previously Presented) The method of claim 33, further comprising:

determining the constant term specifically for the group of requests.

39. (Previously Presented) The method of claim 38, wherein the arrival interval is a predetermined accepted interval for requested arrivals.

40. (Previously Presented) A system, comprising:

an interconnect coupled between an initiator and a target, wherein an arrival model is satisfied by the initiator if a request arrives before a first time less than or equal to an ordinal number times an arrival interval, wherein the ordinal number signifies a position of the request among a group of requests;

a Quality of Service (QoS) logic unit coupled to the interconnect and is configured to satisfy a service model if the initiator satisfies the arrival model, wherein

the logic unit satisfies the service model if the request is serviced before a second time

less than or equal to a constant term plus the ordinal number times a service interval;

and

wherein the Quality of Service (QoS) logic unit is configured to satisfy a QoS

contract and is located at a boundary between the initiator and the interconnect and the

QoS contract is based on the arrival model and the service model being satisfied.

41. (Previously Presented) The system of claim 40, wherein the service interval is

greater than the arrival interval.

42. (Previously Presented) The system of claim 40, wherein the constant term is

determined specifically for the group of requests.

43. (Previously Presented) The system of claim 42, wherein the QoS unit is coupled

between the target and the interconnect.

44. (Previously Presented) The method of claim 40, wherein the QoS contract is

satisfied using the initiator, the target, the interconnect, and the logic that are all located

on a chip.

45. (Previously Presented) The system of claim 44, wherein the QoS unit is part of the

interconnect.

46. (Previously Presented) The system of claim 40, wherein the QoS unit is part of the target.

47. (Currently Amended) A method for tracking service for two or more threads <u>in an Integrated Circuit</u>, comprising:

maintaining a first allocation count for a first thread to track whether the first thread is being serviced by a target <u>in the Integrated Circuit, wherein the first thread is a bandwidth allocation thread</u>;

establishing an adjustable positive limit having a first value for the first allocation count that establishes an initial maximum amount the first allocation count may go up to;

raising the adjustable positive limit for the first allocation count to a second value when the first value for the first allocation count has been reached and the first thread has yet to have a request fulfilled from the target during a regular interval of time;

<u>satisfying a service model if an arrival model is satisfied by an initiator if a request arrives before a first time less than or equal to an ordinal number times an arrival interval, wherein the ordinal number signifies a position of the request among a group of requests; and</u>

<u>wherein the service model is satisfied if the request is serviced before a second time less than or equal to a constant term plus the ordinal number times a service interval</u>.

48. (Previously Presented) The method of claim 47, further comprising:

reducing the positive limit from the second value to a third value for the first

allocation count at a time when a second allocation count receives a credit and is

positive.

49. (Previously Presented) The method of claim 48, wherein the positive limit is not

reduced below the first value.

50. (Previously Presented) The method of claim 47, further comprising:

crediting the first and second allocation count at a regular interval;

debiting the first allocation count when the first thread is serviced; and debiting the

second allocation count when a second thread is serviced; and establishing a negative

limit having a fourth value for the first allocation count.

51. (Previously Presented) The method of claim 47, wherein raising comprises

increasing the positive limit by an amount proportional to an allocation rate of the first

thread.

52. (Previously Presented) The method of claim 51, wherein the amount proportional

to the allocation rate of the first thread comprises a number of times the second thread

was serviced by the target during the regular interval of time multiplied by the allocation

rate of the first thread.

53. (Previously Presented) The method of claim 50, further comprising:

determining whether the first thread will be serviced according to the first

allocation count.

54. (Previously Presented) The method of claim 53, further comprising:

servicing the first thread instead of the second thread when the second allocation

count is less than the first allocation count.

55. (Previously Presented) The method of claim 47, wherein the second thread is a

high-priority thread.

56. (Previously Presented) The method of claim 55, wherein the first thread is a

bandwidth-allocation thread.

57. (Currently Amended) A system, comprising:

an interconnect coupled to an initiator and a target;

a first logic coupled to the interconnect, and configured to maintain a first

allocation count for a first thread from the initiator to track bandwidth usage by the first

thread;

a second logic coupled to the first logic, and configured to establish an adjustable

positive limit having a first value for the first allocation count that establishes an initial

maximum amount the first allocation count may go up to; and

a third logic coupled to the second logic, and configured to raise the adjustable

positive limit from the first value to a second value when the first value for the first

allocation count has been reached, then the first thread has not been service during a predetermined interval of time, and the first thread has one or more requests waiting to be serviced from the target, wherein the first thread is a bandwidth allocation thread;

an arrival model logic coupled to the interconnect and the first logic, the an arrival model logic is configured to satisfy a service model if an arrival model is satisfied by the initiator if a request arrives before a first time less than or equal to an ordinal number times an arrival interval, wherein the ordinal number signifies a position of the request among a group of requests; and

wherein the service model is satisfied if the request is serviced before a second time less than or equal to a constant term plus the ordinal number times a service interval.

58. (Previously Presented) The system of claim 57, further comprising:

a fourth logic coupled to the second logic, and configured to reduce the raised adjustable positive limit to a third value when a second allocation count receives a credit and is positive.

59. (Previously Presented) The system of claim 57, wherein the positive limit is raised by an amount proportional to an allocation rate of the first thread.

60-62. (Canceled)